

WHAT IS CLAIMED IS:

1. An optical signal processor comprising:
a first diffraction grating device for diffracting
light inputted;

5 a second diffraction grating device for diffracting
the light diffracted by the first diffraction grating device;
and

first and second half-wave plates, disposed on an
optical path between the first and second diffraction grating
10 devices, having respective optic axes in directions
different from each other by 45 degrees.

2. An optical signal processor according to claim
1, wherein the first and second diffraction grating devices
are arranged parallel to each other.

15 3. An optical signal processor according to claim
1, wherein the first and second half-wave plates are arranged
orthogonal to an optical axis of light having a center
wavelength in a wavelength band in use.

4. An optical signal processor according to claim
20 1, wherein a mirror is disposed on the optical path between
the first and second diffraction grating devices; and

wherein the first and second half-wave plates are
disposed on an optical path between the first diffraction
grating device and the mirror, or on an optical path between
25 the second diffraction grating device and the mirror.

5. An optical signal processor according to claim

4, wherein the mirror is arranged parallel to the first or second diffraction grating device.

6. An optical signal processor according to claim 4, wherein the first and second diffraction grating devices are integrated with each other.

7. An optical signal processor according to claim 1, wherein the first and second diffraction grating devices have the same grating direction.